

AirPOLDER images from Proteus flight 176 - July 03 2002 – CRYSTAL-FACE

Comments from top left clockwise :

[1] Acquisition # 2184

Time : 16h17

Location : 26.02 N – 82.02 W

Contrails over ocean with thin cirrus layer and intense sun glint

[2] Acquisition # 1856

Time : 16h01

Location : 25.73 N -- 80.84 W

[2a] RGB Composite: 443nm, 765nm, 864nm Total Radiance

Complex multilayered cloud system with high cirrus over lower level liquid clouds.

At third way from left and bottom of image, bright spot corresponds to sharp sun glint over wet land. Glory is also visible here at third way from top right of image.

[2b] GrayScale 864 nm Polarized Radiance

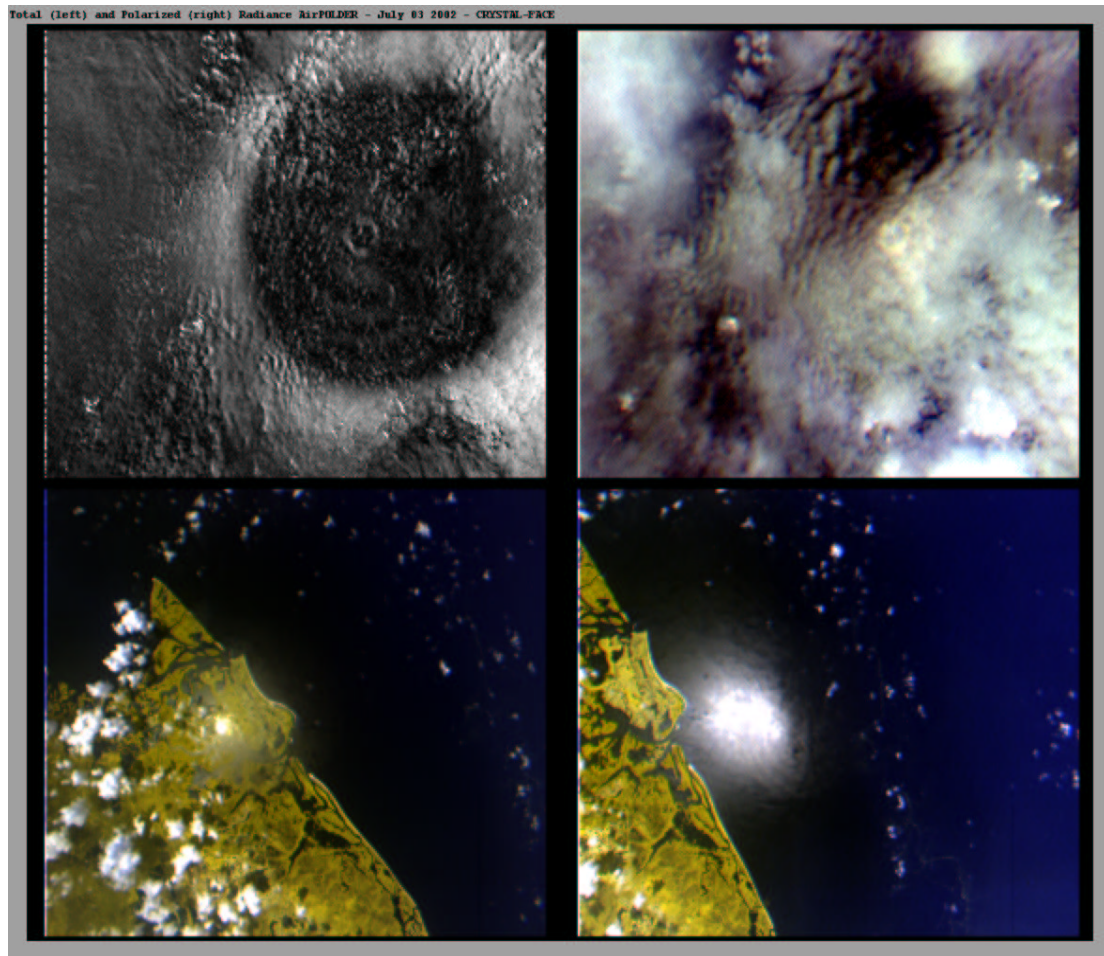
Same scene in polarized radiance (864nm) shows clearly cloudbow (140 degrees scattering angle), and supernumerary bows with inner ring (glory) just around the hot spot (direct back scattering direction)

[3] Acquisition # 2109

Time : 16h13 Location : 25.94 N – 81.75 W

RGB Composite: 443nm, 765nm, 864nm Total Radiance

Very sharp glint over water/land and scattered convective low clouds.



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Comments from top left then clockwise :

[1] Acquisition # 1856

Time : 16h01 Location : 25.73 N -- 80.84 W

[1a] GrayScale 864 nm Polarized Radiance

Same scene as [1b] in polarized radiance (864nm) shows clearly cloudbow (140 degrees scattering angle), and supernumerary bows with inner ring (glory) just around the hot spot (direct back scattering direction)

[1b] RGB Composite: 443nm, 765nm, 864nm Total Radiance

Complex multilayered cloud system with high cirrus over lower level liquid clouds.

At third way from left and bottom of image, bright spot corresponds to sharp sun glint over wet land. Glory is also visible here at third way from top right of image.

[2] Acquisition # 2138

Time : 16h14 Location : 25.98 N – 81.85 W

RGB Composite: 443nm, 765nm, 864nm Total Radiance

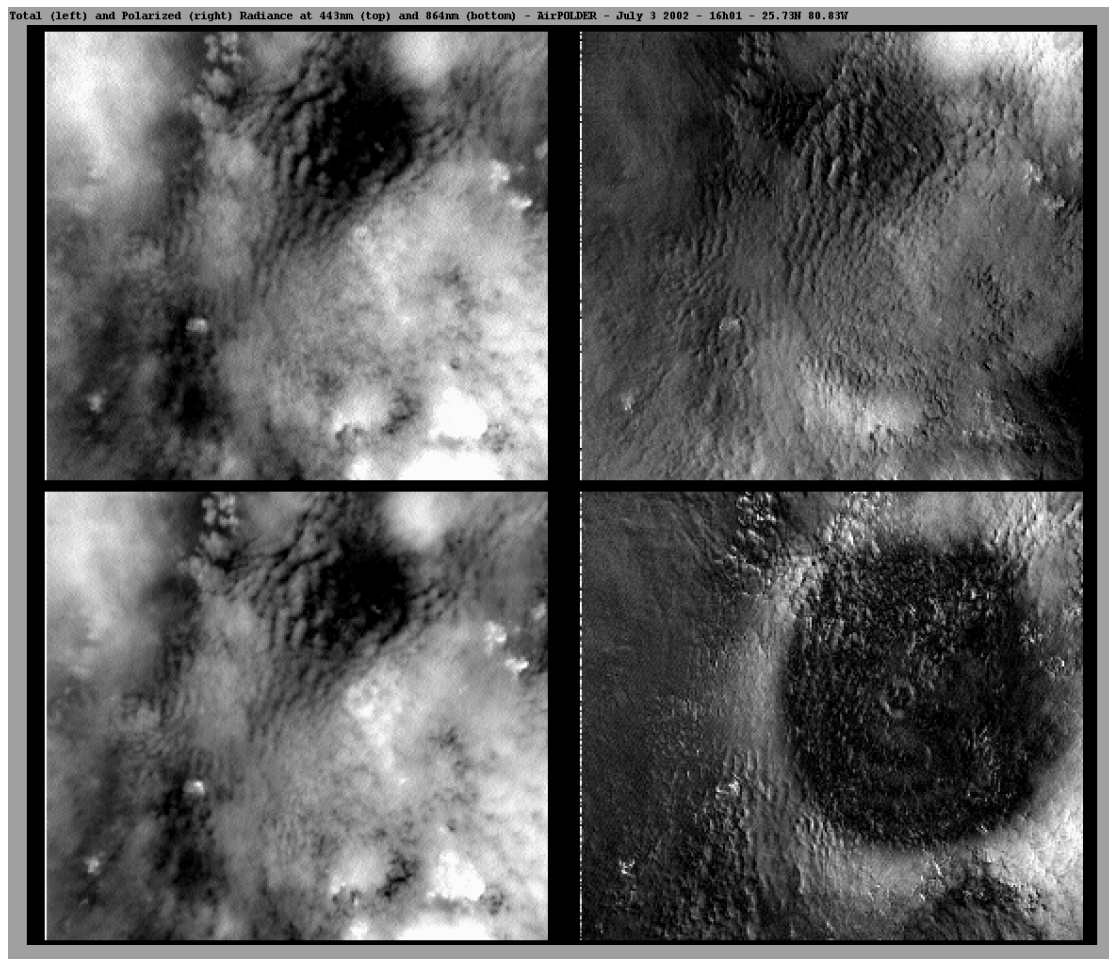
Broad sun glint over ocean surface

[3] Acquisition # 2109

Time : 16h13 Location : 25.94 N – 81.75 W

RGB Composite: 443nm, 765nm, 864nm Total Radiance

Very sharp glint over water/land and scattered convective low clouds.



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[1] Acquisition # 1856

Time : 16h01

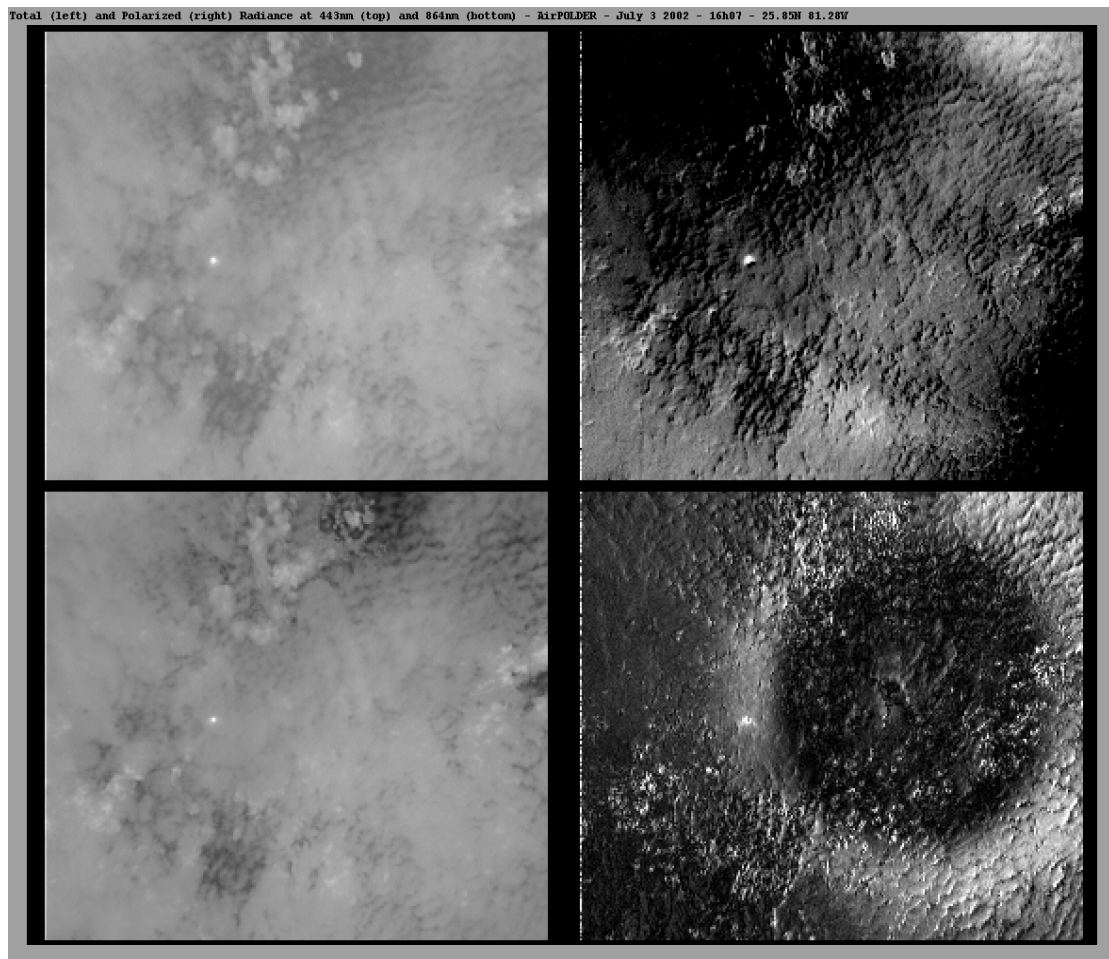
Location : 25.73 N -- 80.84 W

Total (left images) and Polarized Radiance (right side images) at 443nm (top) and 864 nm (bottom).

Polarized radiance shows up clearly the presence of low liquid clouds revealed by the cloudbow feature occuring at 140 degrees scattering angle. (bright ring on bottom right images).

The cloudbow appears less clearly at 443 nm than at 864 nm due to enhance Rayleigh scattering in the blue channel masking lower atmosphere.

Note also the little smaller inner ring (glory) in polarized radiance at 864nm is just around the direct backscattering direction. This ring lay just around the hot spot feature (hardly distinguishable here).



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[1] Acquisition # 1982

Time : 16h07

Location : 25.85 N – 81.29 W

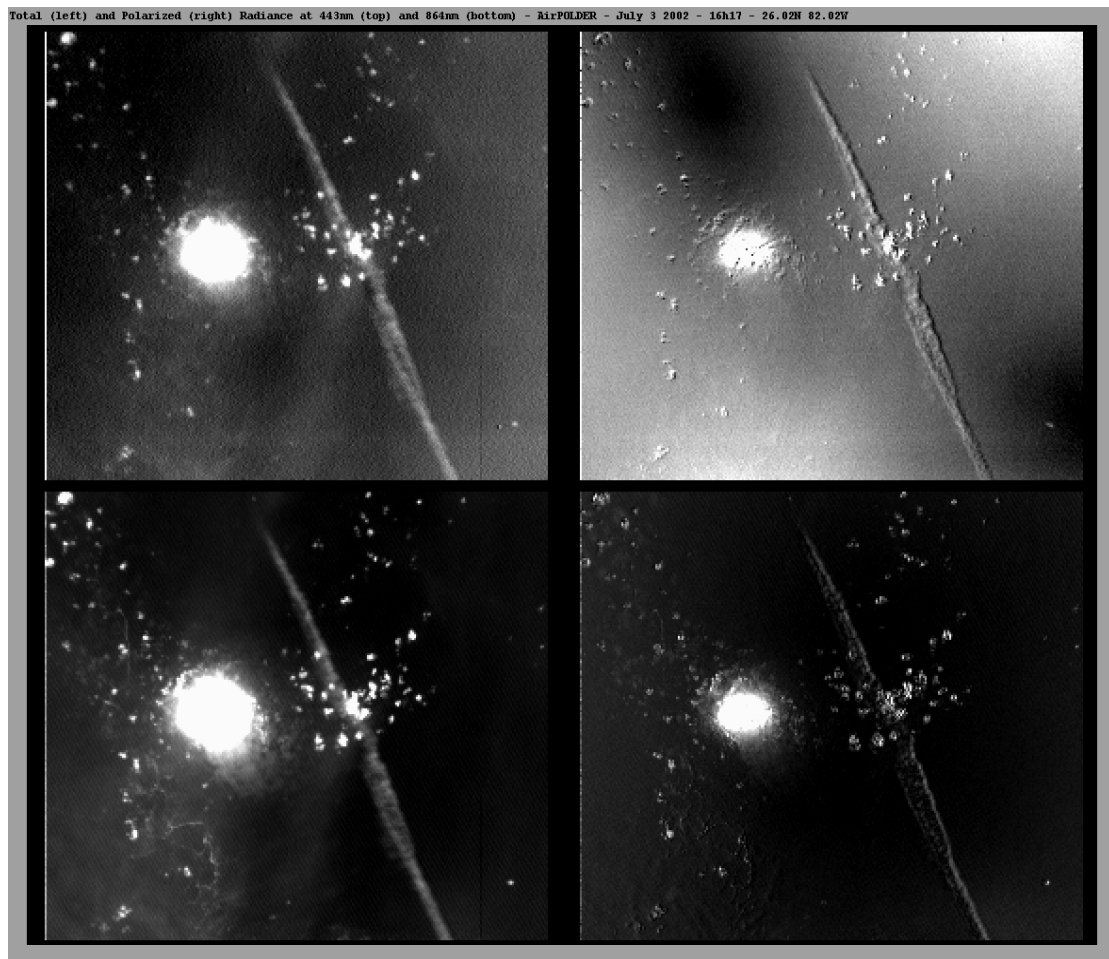
Total (left images) and Polarized Radiance (right side images) at 443nm (top) and 864 nm (bottom).

Polarized radiance shows up clearly the presence of low liquid clouds revealed by the cloudbow feature occurring at 140 degrees scattering angle. (bright ring on bottom right images).

The cloudbow appears less clearly at 443 nm than at 864 nm due to enhance Rayleigh scattering in the blue channel masking lower atmosphere.

Despite the thin cirrus layer overlaying most of the region of interest, the presence of liquid clouds appears on polarized images.

Also, note the sharp bright spot that appears on all images (better viewed in total radiance), that corresponds to sun glint over wet land. The very clean and perfectly horizontal surface of liquid water in wet land produces that sharp and intense reflection of the sun mostly like a mirror would do.



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[1] Acquisition # 2184

Time : 16h17

Location : 26.02 N – 82.02 W

Total (left images) and Polarized Radiance (right side images) at 443nm (top) and 864 nm (bottom).

Contrails over ocean with thin cirrus layer, scattered lower clouds and intense sun glint